Good day fellow Tigers!

My name is Dylan and today I’m going to be discussing MSD team VanGoBot and the Robotic Assistive Drawing Device

The multidisciplinary team includes Computer Engineers, David and Andrew, Mechanical Engineers Josh, John and George and Electrical Engineers: Allison and myself

This project was built to help students with limited mobility at Niagara BOCES so that they could participate and feel more included in their art education

The goal of this project was to build a device that was able to respond to a variety of interfaces, and create a physical drawing within a 30 minute art class

Now to get into how this fantastic device was made

The device was created out of aluminum extrusion due to its light and modular design and the surface was made out of pvc so it could have a sleek and smooth drawing surface.

Belts attached to stepper motors were used to move the gripper in x and y directions, and limit switches were used to home the gripper.

The gripper, which moves up and down on the paper using servos, was 3D printed and its jaws were designed to fit a variety of artistic utensils.

The device was built so that it could be plugged into a wall, and a Raspberry Pi was used to control the servos on the device and a motorPlate would control the motors

The student’s interface uses buttons or a joystick that communicate with the Arduino on the device. The buttons which fit on a wheelchair table for easy access, can move in four directions and also includes a start/stop button.

The teacher’s interface is displayed on a touch screen, and allows device setup by setting the paper size and changing the sensitivity of movement and pressure based on the tool used.

Now into a demo of the device drawing!

Finally some conclusions and recommendations.